

ABSTRACT OF THE DISCLOSURE

Disclosed is a method for determining the placement of ITAPs in wireless neighborhood networks. The method disclosed provides for efficient integration of multi-hop wireless networks with the Internet by placing ITAPs at strategic locations. Initially the method provides for the formulation of the ITAP placement problem under three wireless models. For each model, methods are developed to efficiently place ITAPs in the networks. The methods aim to minimize the number of required ITAPs while guaranteeing users' bandwidth requirements. Next, a fault tolerance version of the placement method is presented that provides bandwidth guarantees in the presence of failures. Finally the methods are extended to take into account variable traffic demands by developing an approximation algorithm to simultaneously optimize ITAP placement based on demands over multiple periods.